

Claims:

1. An audible signal generator that produces determinate direction radiation, said generator comprising:

a plurality of high power amplifiers;

5 a plurality of loudspeakers connected to said plurality of amplifiers arraigned in a predetermined array; and

a digital signal processor (DSP) configured to control frequencies, amplitudes, and phases of the signals, whereby a signal that has high amplitude in a determined pattern may be obtained.

10 2. An audible signal generator in accordance with claim 1 further including a location determination device connected to said DSP and configured to calculate said determined pattern.

3. An audible signal generator in accordance with claim 2 wherein said location determination device comprises a geo-location positioning system (GPS).

15 4. An audible signal generator in accordance with claim 2 wherein said location determination device comprises a fixed transmitter located at a predetermined location.

5. An audible signal generator in accordance with claim 1 further including a database connected to said DSP and configured to store said plurality of signals.

20 6. An audible signal generator in accordance with claim 5 wherein said plurality of signals is stored as pulse code modulated (PCM) data.

7. An audible signal generator in accordance with claim 2 wherein said DSP predetermines the pattern of the signal as the audible signal generator moves.

25 8. An audible signal generator in accordance with claim 1 further including a motion detector, said DSP further configured to change the predetermined high amplitude pattern responsive to said motion detector.

9. An audible signal generator in accordance with claim 5 further including a position detector wherein said DSP is further configured to select one of said plurality of signals responsive to said position detector.

30 10. An audible signal generator in accordance with claim 5 further including a time of day detector wherein said DSP is further configured to select one of said plurality of signals responsive to said time of day detector.

11. An audible signal generator in accordance with claim 1 further including a temperature sensor wherein said signal generated by said DSP is responsive to said temperature sensor.

12. An audible signal generator in accordance with claim 1 wherein said
5 plurality of high power amplifiers comprise a class D amplifier.

13. An audible signal generator in accordance with claim 1 further including a manual activation device.

14. An audible signal generator in accordance with claim 1 wherein said DSP is further configured to produce said determined pattern by sweeping a region of high
10 amplitude in said determined pattern.

15. A train whistle comprising:

a plurality of high power amplifiers;

a plurality of loudspeakers connected to said plurality of amplifiers arraigned in a predetermined array; and

15 a digital signal processor configured to control frequencies, amplitudes, and phases of the signals, whereby a signal that is only audible in a determined pattern may be obtained.